Appl. No.: 10/728,349
Amdt. dated 05/10/2005
Reply to Office action of February 10, 2005

REMARKS

This Amendment is filed in response to the Office Action dated February 10, 2005.
Applicants first note with appreciation the thorough examination of the application as evidenced
by the Office Action. In response to the Office Action, Applicants have canceled Claims 4 and 8
and amended Claims 1, 3, 5-7, and 11. Applicants respectfully submit that the claims as
amended are patentable over the cited references and therefore request reconsideration and
allowance of the claims in light of the remarks below.

I.   The Claims Are Definite

On page 2, the Office Action rejects Claims 1-4 and 11 as indefinite. Claims 1 and 11
were rejected with regard to language of the altering step; Claim 3 was rejected with regard to
the language concerning an example message; and Claim 4 was rejected with regard to use of the
term baud rate. In light of these rejections, Claims 1, 3, 5-7 and 11 have been amended to more
clearly define the claimed invention. Further, Claims 4 and 8 have been canceled.[1] Applicants
respectfully submit that the amended Claims are now definite.

II.   The Claims Are Patentable

On pages 3-6, the Office Action rejects Claims 1-11 as obvious in light of U.S. Patent
No. 6,013,108 to Karolys. Specifically, the Office Action alleges that the '108 Karolys patent
discloses a similar network system to the claimed invention. The Office Action acknowledges
that the '108 Karolys patent nowhere discloses operation in an asynchronous mode or detection
of the bit rate by the network device interface. However, the Office Action argues that such
mode of operation would have been obvious in light of an article by Gorry Fairhurst entitled
"Manchester Encoding" and/or U.S. Patent No. 4,449,119 to Hanna. Applicants respectfully
disagree.

As background, the claimed invention relates to a solution for networking various sensors
and actuators in the field by a common bus to a bus controller. Network device interfaces are

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[1] The amendments made to all of the claims were merely for clarification and were not made in light of the prior art.

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used to connect one or more sensors and/or actuators to the bus and handle communications between the bus controller and the sensors and/or actuators. The system uses a simplified protocol for transmitting commands and data between the bus controller and network device interfaces. By using a simplified protocol, less sophisticated network device interfaces are needed. The system may also use transmission signal protocol that allows for synchronization of the bus controller and the network device interface across the bus without requiring the network device interface to include a clock for synchronizing transmissions. Importantly, the ability of the network device interface device to detect bit rate is advantageous for fast recovery when there are power glitches in the networked system, or where the controller has transitioned from synchronous to asynchronous mode. A second important advantage of the automatic synchronous clock detect and automatic bit rate detect features is that it allows a single type of network device interface to communicate on the network using different modes of network communication. Designer of the network system can choose the mode of network communication that is optimized for the particular application of the network system.

The present invention includes a bit-rate detector in the network device interface that is looking for one of a finite set of bit-rates. The bit-rate detector uses multiple bit decoders, each implementing the necessary timing to successfully decode bits at a particular bit rate. Each bit-rate bit-decoder is simultaneously attempting to decode bits. If one of the valid bit-rates is sent, one bit decoder will successfully decode bits while the others will fail. This will cause a valid condition for a particular bit-rate and the command/data decoder will switch to decoding at this bit rate. In some embodiments, the present invention uses a dummy or example message. This message is used for the purpose of determining the bit rate, as its bit content is known.

With regard to the rejections, Applicants initially note that the Fairhurst article is not prior art. The article is dated January 9, 2001. The present application claims priority to U.S. Application No. 09/735,146, filed December 12, 2000, which is prior to the publication date of the Fairhurst article.

With regard to the '108 Karolys patent, Applicants note that the patent nowhere teaches or suggest asynchronous communication. The patent specifically discloses use of a clock 206 at each TBIM for synchronizing communications. The Office Action acknowledges this failure in

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teaching. However, the Office Action cites the '119 Hanna patent and argues that performing asynchronous communication by bit rate detection of the transmitted signal is known, and that it would have been obvious to one skilled in the art. Applicants disagree with this line of reasoning.

Applicants note that the inventors of the '108 Karolys patent were faced with a similar issue to that of the present invention; provide a low cost networked solution. However, the inventors of the '108 Karolys patent, which one would presume are skilled in the art, did not think to use asynchronous communication by detecting bit rate of the transmitted signal. Instead, looking at the same problem as the current inventors, the inventors of the '108 Karolys patent chose not to use asynchronous communication in general, much less use of the transmitted signal to set bit rate. Instead, the inventors of the '108 Karolys patent chose to a more expensive and complex system that employs clocks for each TBIM. Given that the inventors of the '108 Karolys patent are ones skilled in the art and presumably knew of the '119 Hanna patent, but did not think to use asynchronous communication, Applicants respectfully submit that the claims are not obvious. The Office Action's allegation that it would have been obvious to combine the '119 Hanna patent with the '108 Karolys patent is speculative at best. Applicants instead argue that the failure of the inventors of '108 Karolys patent to use asynchronous communication by determining bit rate from the transmitted signal is proof of the non-obviousness of the claims.

In light of the above, Applicants respectfully submit that independent Claims 1, 5, and 10 are patentable over the cited references.

CONCLUSION

In view of the amended and canceled claims and the remarks presented above, it is respectfully submitted that all of the present claims of the application are in condition for immediate allowance. It is therefore respectfully requested that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper.

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However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.
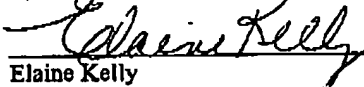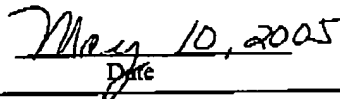
Respectfully submitted,

W. Kevin Ransom
Registration No. 45,031

Customer No. 00826
ALSTON & BIRD LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Charlotte Office (704) 444-1000
Fax Charlotte Office (704) 444-1111

CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the US Patent and Trademark Office at Fax No. (703) 872-9306 on the date shown below.

Elaine Kelly   May 10, 2005
                                             Date